

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of optically encoding data for transmission over a wavelength division multiplexed optical communications system comprising the steps of:

generating a periodic series of optical pulses defining a series of time slots, wherein one pulse appears in each time slot;

filtering the pulses by way of a filter to produce carrier pulses extending over more than one time slot; and

modulating the pulses with data for transmission; wherein

the filter gives rise to the pulses having a temporal profile with a minimum substantially in the center of each of the time slots adjacent to the time slot for that pulse and with an oscillating tail that extends from the minimum to each of the time slots adjacent to the time slots having the minimum that are not the time slot for the pulse and,

the filter is detuned to optimise transmission performance.

2. (Cancelled).

3. (Previously Presented) A method according to claim 1, wherein the filtered carrier pulses have a substantially flat top spectral profile.

4. (Cancelled).

5. (Previously Presented) A method according to claim 1, wherein the step of modulating the pulses with data is performed before the filtering step.

6. (Currently Amended) A transmitter for producing an optical data signal for transmission over a wavelength division multiplexer optical communication system comprising: means for producing a periodic series of optical pulses defining a series of time slots, wherein one pulse appears in each time slot;

a filter having a spectral profile giving rise to pulses with a temporal profile extending over more than one time slot, the temporal profile having a minimum substantially in the center of each of the time slots adjacent to the time slot for that pulse and having an oscillating tail that extends from the minimum to each of the time slots adjacent to the time slots having the minimum that are not the time slot for the pulse; and

modulating means for modulating the pulses with data for transmission, wherein the filter is detuned to optimize transmission performance.

7. (Currently Amended) A transmitter according to claim [[5]] 6, wherein the filter has a substantially flat top spectral profile.

8-9. (Cancelled).

10. (New) A method according to claim 1, wherein the filter is detuned to optimize transmission performance.

11. (New) A method according to claim 1, wherein the filter is a super-Gaussian 6th order bandpass filter.

12. (New) A method according to claim 1, wherein modulating the pulses with data for transmission is performed by a Mach Zehnder modulator.

13. (New) A method according to claim 1, wherein a first portion of the oscillating tail rises as it extends from the minimum to a local maximum and a second portion of the oscillating tail falls from the local maxima as it crosses into the time slots adjacent to the time slots having the minimum.

14. (New) A transmitter according to claim 6, wherein the modulating means is placed in the transmitter before the filter.

15. (New) A transmitter according to claim 14, wherein an amplifier is placed between the modulating means and the filter.

16. (New) A transmitter according to claim 6, wherein the modulating means a Mach Zehnder modulator.

17. (New) A transmitter according to claim 6, wherein the filter is a super-Gaussian 6th order bandpass filter.

18. (New) A transmitter according to claim 6, wherein a first portion of the oscillating tail rises as it extends from the minimum and a second portion of the oscillating tail falls in relation to the first portion as it crosses into the time slots adjacent to the time slots having the minimum.

19. (New) A transmitter for producing an optical data signal for transmission over a wavelength division multiplexer optical communication system comprising:

means for producing a periodic series of optical pulses defining a series of time slots, wherein one pulse appears in each time slot;

a filter having a spectral profile giving rise to pulses with a substantially Sinc shaped temporal profile extending over more than one time slot, the substantially Sinc shaped temporal profile having a minimum substantially in the center of each of the time slots adjacent to the time slot for that pulse; and

modulating means for modulating the pulses with data for transmission.

20. (New) A transmitter according to claim 19, wherein the substantially Sinc shaped temporal profile also has an oscillating tail that extends from the minimum to each of the time slots adjacent to the time slots having the minimum that are not the time slot for the pulse.

21. (New) A transmitter according to claim 20, wherein a first portion of the oscillating tail rises as it extends from the minimum to a local maximum and a second portion of the oscillating tail falls from the local maxima as it crosses into the time slots adjacent to the time slots having the minimum.

22. (New) A transmitter according to claim 19, wherein the filter is detuned to optimize transmission performance.

23. (New) A transmitter according to claim 19, wherein the modulating means a Mach Zehnder modulator.

24. (New) A transmitter according to claim 19, wherein the filter is a super-Gaussian 6th order bandpass filter.